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EXAMINER

GUSHI, ROSS N

ART UNIT

PAPER NUMBER

2833

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/975,213		Applicant(s) BEAMAN ET AL.	
	Examiner Ross N. Gushi		Art Unit 2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on ____.

2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-12, 14-41, 43-50, 52-69 and 71-74 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) ☐ Claim(s) 8, 16, 47 and 54 is/are allowed.

6) ☒ Claim(s) 1-7, 10-12, 14, 15, 17-25, 27-41, 43-46, 48-50, 52, 53, 55-57, 60-69 and 71-74 is/are rejected.

7) ☐ Claim(s) 9, 26, 58 and 59 is/are objected to.

8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2/13/04.

4) ☐ Interview Summary (PTO-413) Paper No(s). ____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6, 11, 14, 17, 18, 21, 32, 33, 34, 37, 38, 39, 40, 41, 5, 7, 10, 15, 19, 23, 24, 25, 28, 29, 30, 31, 36, 43, 46, 49, 52, 53, 55-57, 60-69, 72 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Beaman et al. ("Beaman") and Sinclair.

Regarding claims 1, 21, an electrical structure comprising a conductive button, said conductive button including: a dielectric core 24; and a conductive wiring 22 helically wound circumferentially around the dielectric core, wherein the conductive wiring terminates in at least two end contacts at a first end of the conductive button, and wherein the conductive wiring terminates in at least two end contacts at a second end of the conductive button.

Li does not discuss the ends of the contact. Beaman discloses contacts including a surface concavity 16 extending beyond dielectric core 17. Similarly, Sinclair discloses contacts including a surface concavity (50, 52) extending beyond dielectric core 32. At the time of the invention, it would have been obvious to construct the Li contact ends to a surface concavity extending beyond the dielectric core as taught in

Beaman and Sinclair. The suggestion for doing so would have been to provide a good electrical connection and wiping surface as taught in Beaman (col. 3, lines 59-65) and Sinclair (Col. 7, lines 25-30).

Per claim 4, Li discloses being helically wound in no more than one rotational direction, and wherein the one rotational direction is selected from the group consisting of a clockwise direction and a counter clockwise direction.

Per claim 6, Li discloses that the conductive wiring includes a conductive material selected from the group consisting of copper, a copper alloy, nickel, palladium, and platinum (col. 7, lines 1-10).

Per claim 11, Li discloses an outer dielectric jacket 26.

Per claim 18, the Li ends are coated with a noble metal (col. 7, lines 5-10).

Per claim 32, the components are compressible.

Per claim 33, 34, Li discloses substrates (12, 16) with pads.

Per claims 37, 38, Li discloses holder 20.

Per claim 39, 40, the contacts are maintained by clamping forces (col. 5, lines 62- col. 6, line 5; col. 9, lines 40-45) .

Per claim 41, 42, the contacts may be solderably coupled (col. 7, lines 30-40).

Claims 14, 17, are rejected for the reasons pertaining to claims 4, 6

Regarding claims 5 and 29, and the diameter of the wiring or core, to the extent that Li does not specify exact dimensions, at the time of the invention, workable dimensions of the various elements would have been a matter of routine experimentation. In re Antonie, 559 F.2d 618 (CCPA 1977). Variations in the

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diameter would have been obvious minor adjustments without patentable significance.

See In re Aller, 105 USPQ 233 (CCPA 1955)(Where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimal or workable ranges by routine experimentation).

Regarding claims 7, and the hardness of the core, to the extent that Li does not specify the hardness, at the time of the invention, workable hardnesses of the various elements would have been a matter of routine experimentation. In re Antonie, 559 F.2d 618 (CCPA 1977). Variations in the hardness would have been obvious minor adjustments without patentable significance. See In re Aller, 105 USPQ 233 (CCPA 1955)(Where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimal or workable ranges by routine experimentation).

Regarding claim 10, Li discloses that the core is made of compressible and insulating and made of a suitable dielectric material. Li does not specify that the core has a foamed structure. The selection of a known material based on its suitability for its intended purpose would have been obvious. Sinclair & Carroll Col. V. Interchemical Corp., 65 USPQ 297 (1945); In re Leshin, 227 F.2d 197 (CCPA 1960). At the time of the invention, it would have been obvious to select a suitable material such as well known materials having foamed structure.

Regarding claim 15, Li states that the angle of conducting element 22 at the surface of button 18, which is determined in the case of a winding or coil by the pitch, is a design parameter that bears a direct relation to the contact pressure required--the steeper (more vertical) the angle, the higher the force required. Col. 6, line 65. Li does

not specifically state that the angle is between 30 and 60 degrees. At the time of the invention, a workable pitch would have been a matter of routine experimentation. In re Antonie, 559 F.2d 618 (CCPA 1977). Variations in the pitch would have been obvious minor adjustments without patentable significance. See In re Aller, 105 USPQ 233 (CCPA 1955).

Regarding claims 24, 25, 30, 31, 36, 74 and the materials of the core and jacket, the selection of a known material based on its suitability for its intended purpose would have been obvious. Sinclair & Carroll Col. V. Interchemical Corp., 65 USPQ 297 (1945); In re Leshin, 227 F.2d 197 (CCPA 1960). At the time of the invention, it would have been obvious to select a suitable materials (such as polytetrafluoroethylene or expanded polytetrafluoroethylene) for the core and jacket, including same or different materials for the core and jacket.

Claims 19, 23, and 28, are rejected for the reasons pertaining to claims 5, 7, 10.

Regarding claims 43, 46, 49, 52, 53, 55-57, and 60-69, 72 the method of forming the structures discussed in claims discussed above would have been obvious at the time of the invention.

Claims 2, 3, 12, 35, 44, 45, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li, Beaman, and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 32, 33, 34, 37, 38, 39, 40, 41, and 42, in view of Voltz. Li notes that "by changing the shape, number, and rigidity of the conducting elements as well as the shape and rigidity of the polymer body, the contact resistance, contact force, and compressibility can be selected within a wide range to meet the needs of the particular application." Col. 6, lines 5-10.

Li also discloses using wire mesh for shielding (col. 7, lines 60-65) and oppositely wound conductors (col 7, lines 45-55). Li does not specifically disclose the helical winding as being braided or served. Voltz discusses using various configurations of wire meshing including braided and served meshing as flexible electrical conductors (col. 3, lines 45-55). At the time of the invention, it would have been obvious to use various well known configurations of conducting elements, such as braided or served mesh as taught in Voltz, for the Li conducting elements. The suggestion or motivation for doing so would have been to obtain the desired contact resistance, contact force, and compressibility as taught in Li.

Claims 12, 13, and 35 are rejected for the reasons pertaining to claims 2, 3. Regarding claims 44, 45, 50, the method of forming the structures discussed in claims discussed above would have been obvious at the time of the invention.

Claims 20, 22, 71, 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 21, 32, 33, 34, 37, 38, 39, 40, 41, 5, 7, 10, 15, 19, 23, 24, 25, 28, 29, 30, 31, 36, 43, 46, 49, 52, 53, 55-57, 60-69, and 72, in view of Chan et al. ("Chan"). Li does not discuss the ends of the contact. Chan discloses contacts including non-planar, sharp edged ends (120). At the time of the invention, it would have been obvious to construct the Li contact end to include non-planar sharp edged features as taught in Chan. The suggestion or motivation for doing so would have been to increase the reliability of the final connection by providing aggressive mechanical piercing of surface oxides and contaminants (Chan col. 5, lines 55-65).

Claims 27, 48, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li, Beaman and Sinclair as in claims 1, 4, 6, 11, 14, 17, 18, 32, 33, 34, 37, 38, 39, 40, 41, and 42, in view of Kresge et al. ("Kresge"). Li does not discuss a hollow core. Kresge discloses a contact including hollow core 18 (see figures 4c, 4d). At the time of the invention, it would have been obvious to make the Li core hollow as desired. The suggestion or motivation for doing so would have been to adjust the resiliency and flexibility of the contact as taught in Kresge (col. 4, lines 55-65).

Regarding claims 48 and 57, the method of forming the structures discussed in claims discussed above would have been obvious at the time of the invention.

Response to Arguments

Applicant's arguments regarding Li have been considered but are moot in view of the new ground(s) of rejection.

Regarding Chan, applicant argues that Li does suggest a problem of surface oxides. There is no requirement that Li discuss the problem for a proper 103 rejection.

Regarding Beaman, applicant argues that the Li button does not wipe. The examiner disagrees and maintains that even if there is no wiping, Sinclair teaches that the protruding contact is helpful for establish a good contact.

Regarding the materials of the core, the examiner maintains that the selection of materials would have been obvious.

Allowable Subject Matter

Claims 8, 16, 47, and 54 are allowed. Claims 9, 26, 58 and 59 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ross Gushi whose telephone number is (571) 272-2005. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Paula A. Bradley, can be reached at 571-272-2800 extension 33. The phone number for the Group's facsimile is (703) 872-9306.

ROSS GUSHI
PRIMARY EXAMINER

